

State Offsite Methods (SOSM)

Presentation to the SD State Technical Committee
September 25, 2014

Wetland Compliance Regulation

USDA published regulations in 7 CFR Part 12 to implement the HEL and Wetland Conservation (WC) compliance provisions of 1985 Farm Bill, as amended.

The regulations describe, among other things, NRCS responsibilities.

- 7 CFR Part 12.30(a) identifies that “NRCS shall.....
(4) Develop and utilize off-site and on-site wetland identification procedures.”

State Offsite Methods

Food Security Act (FSA) Wetland Identification
Procedures Par. (2-14):

- Methods developed by the NRCS for the sole purpose of supplementing the offsite methodology in the Corps manual for use in identifying wetlands for FSA purposes.
- Adapted to the available data sources and unique wetland conditions within a state.
- Within the Prairie Pothole Region (PPR) (IA, MN, ND, and SD) the NRCS is proposing to use consistent state offsite methods.

Offsite Wetland Procedures

- All states were recently directed to review their offsite procedures and, if needed, take steps to update and revise them.
- NRCS has utilized offsite wetland procedures in some form since the late 1980s.

Wetland Determination Process

Framework:

- 7 CFR Part 12

Foundation:

- Part IV, Methods, of the 1987 Corps of Engineers Wetland Delineation Manual
- Regional Supplements to the 1987 Corps Manual
- FSA Wetland Identification Procedures (Circular 6)
- National Food Security Act Manual

Wetland Identification Procedures

A basic three-step process:

- Step 1: Wetland identification;
- Step 2: Application of exemption criteria; and
- Step 3: Determination of size.

Wetland Identification Procedures

(Part IV) The Indicator-Based Approach as used in the FSA Wetland Identification Methods

- (4-1) FSA wetlands are identified by direct evidence (observation of conditions under Normal Circumstances (NC)) or indirect evidence (indicators of what the site condition would be under NC)
- (4-2)...An indicator...may be obtained from remote resources, site visits, or both.

Wetland Identification Procedures

(Part IV) The Indicator-Based Approach as used in the FSA Wetland Identification Methods

- (4-3) In the absence of direct evidence, the decision if a site meets a particular diagnostic factor (wetland hydrology, prevalence of hydrophytic vegetation, and a predominance of hydric soils) is assisted by confirmation of the presence of indicators.
- The **ultimate decision** if a site meets the FSA criteria for any of the 3 diagnostic factors is **made from a preponderance of evidence, best professional judgment, and the FSA definitions, criteria, or both of the 3 diagnostic factors.**

Benefits of SOSM

- Improves consistency of wetland determinations among states.
- Incorporates newer remote sensing technology such as Light Detection And Ranging (LiDAR) into off-site procedures.
- Increases efficiency in completing wetland determinations without sacrificing accuracy.
- Reduces field work and allows determinations to be issued all year.
- Provides staff with more efficient tools to complete wetland work.



Demonstration of Proposed SOSM

Base Map

The first step is to develop a base map.

- The base map needs to be large enough to read and record multiple sampling units (SU) at one location (e.g. concentric circles).
- A SU is a portion of the tract or field area subject to the wetland determination decision.
- Data is obtained and analyzed for each SU

Base Map

Review previous NRCS wetland mapping. Each previously identified polygon may be a sampling unit.



Base Map

Review appropriate imagery. Each signature listed (CT/INU) not matching prior NRCS wetland mapping is a sampling unit

- The term “appropriate” means that the agency expert will select the imagery year or years that best represents Normal Circumstances (NC), including Normal Environmental Circumstances (NEC), to identify and size SUs.
 - To the extent possible, Section I of the NRCS Field Office Technical Guide will include designation of the image year(s) determined to reflect NEC for specific geographic locations.
- **For sampling units without pre-1985 manipulations**, Base Map development will include use of the imagery year which best reflects NEC as identified in Section I of the FOTG is required.
- **For sampling units with pre-1985 manipulations**, when developing the Base Map the agency expert must determine and utilize imagery which reflects NC with consideration of when the manipulation was installed and the best drained condition of the sampling unit.
 - To determine the best drained condition, the agency expert must review imagery years immediately following the approximate manipulation year and/or use other resources such as producer submitted drainage worksheets, drainage equations, watershed district maps, road culvert elevations and/or county drainage maps to determine the presence or absence of sampling units and their size.

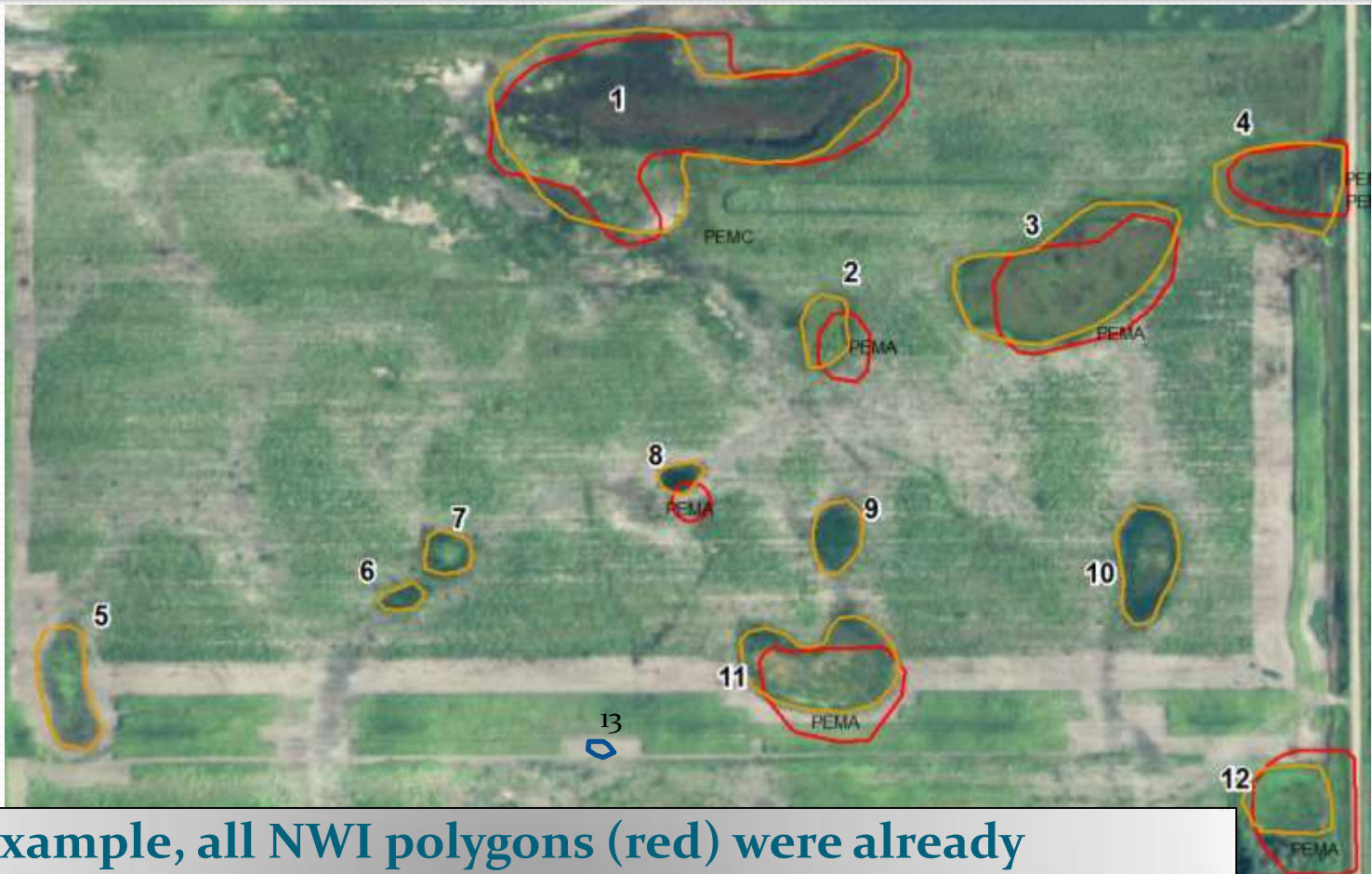
Base Map

Review appropriate imagery. Each signature listed not matching prior NRCS wetland mapping is a sampling unit



Base Map

Review the National Wetland Inventory (NWI) maps. Each NWI polygon not matching the previous resources is a sampling unit.



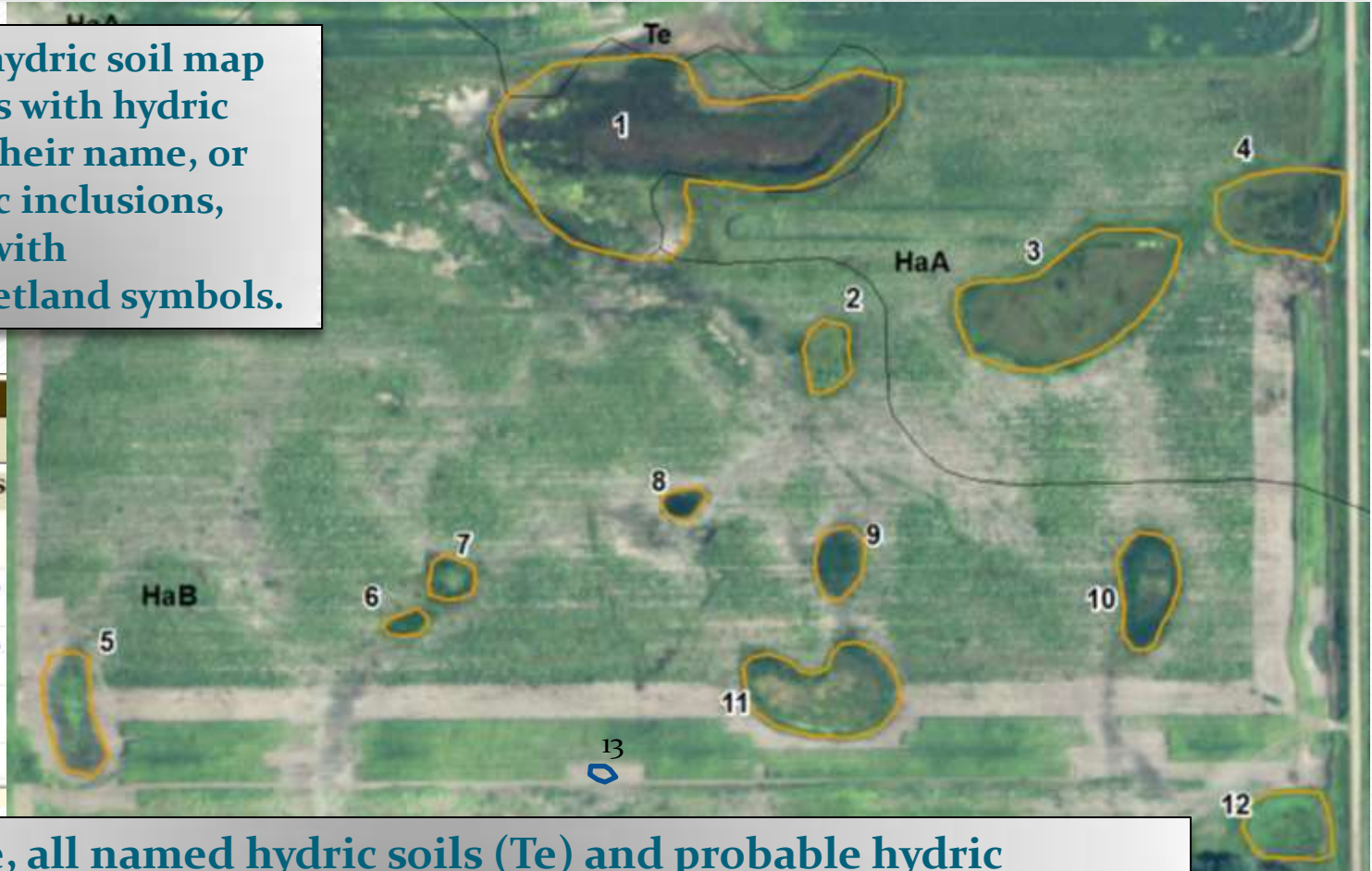
In this example, all NWI polygons (red) were already identified as SUs using the previous resources.

Base Map

Review the soil survey and county hydric soils list. Each soil survey feature not matching other resources may be a sampling unit.

Identify listed hydric soil map units, map units with hydric soils as part of their name, or soils with hydric inclusions, and map units with conventional wetland symbols.

Map Unit Legend	
Beadle County, South Dakota (S)	
Map Unit Symbol	Map Unit Name
HaA	Hand-Bonilla loams, 0 to 3 percent slopes
HaB	Hand-Bonilla loams, 3 to 6 percent slopes
Te	Tetonka-Hoven silt loams
Totals for Area of Interest	



In this example, all named hydric soils (Te) and probable hydric inclusion locations were identified as SUs using the previous resources.

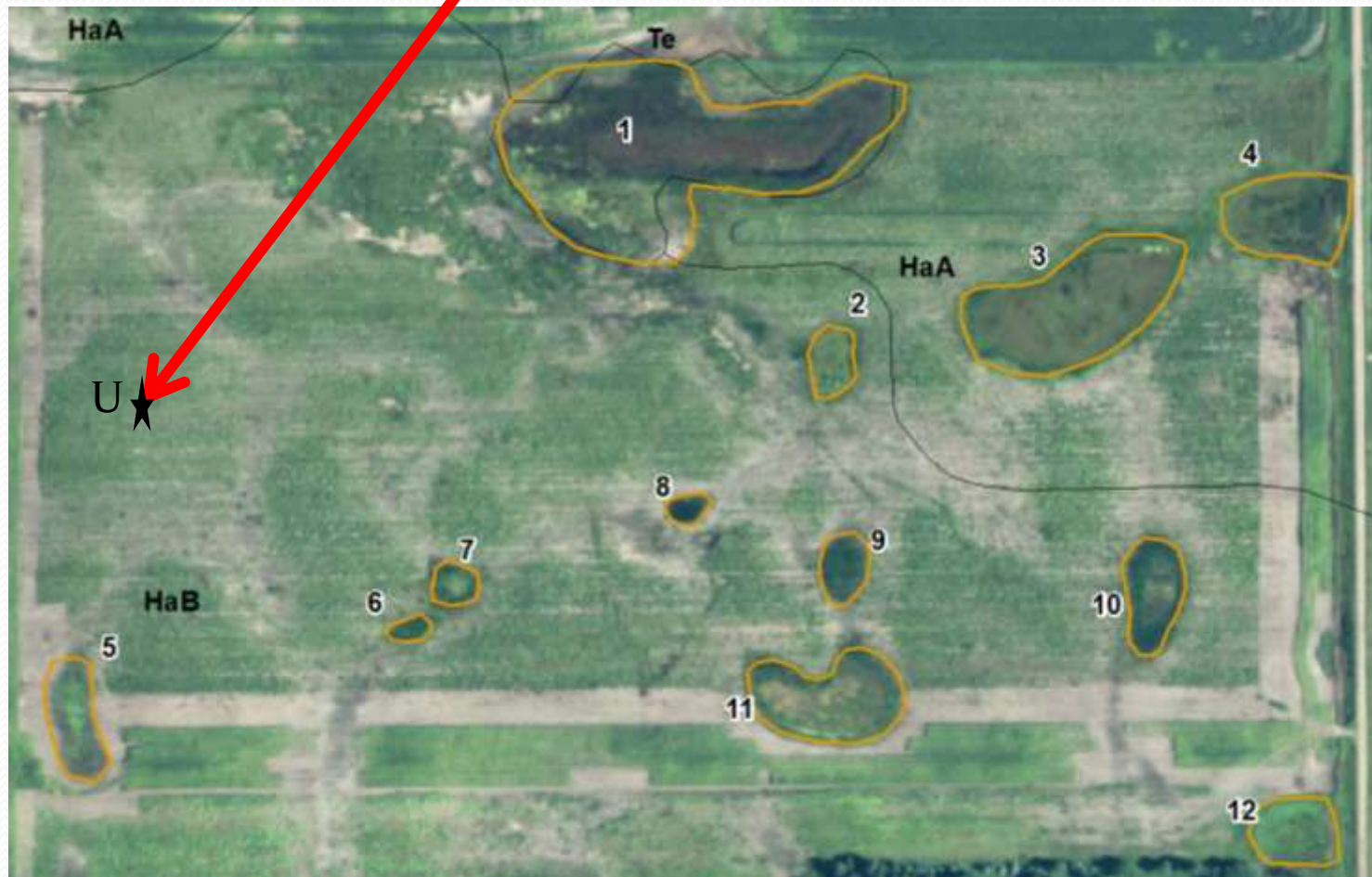
Base Map

Review other inventory tools such as LIDAR, IFSAR, or Topo Maps. Note sampling units as applicable.



Base Map

Identify a single representative non-wetland (upland) sampling unit for each project area (tract or field) .



Base Map

**ANY QUESTIONS
FOR CLARITY?**

Step 1: Determine Remote Indicators for Hydrophytic Vegetation

- The following remote indicators are suggestive (indicates) that the hydrophytic vegetation definition (plants growing in water or growing in a reduced substrate) is met:
 1. Ecological Site Descriptions (ESD)
 2. Approved NRCS wetland reference site data
 3. National Wetland Inventory (NWI) mapping
 4. Official Soil Series Descriptions (OSD)
 5. Prior land-based (on the ground) photography
 6. Atypical procedures found in the Corps Manual and Chapter 5 Problematic Vegetation Procedures of the appropriate Regional Supplement to the Corps Manual.

Step 1: Determine Remote Indicators for Hydrophytic Vegetation

NRCS will use the Section I of the FOTG and the Web Soil Survey:

<http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx> to determine the ecological site descriptions representative to the mapped soil on site.

The screenshot displays the Web Soil Survey interface. On the left, the 'PLSS (Section, Township, Range)' form is visible, showing the following details:

- State: South Dakota
- Principal Meridian: Fifth Principal Meridian
- Section: 9
- Township: 110
- Range: 64
- Duplicate Township: [Dropdown]
- Show PLSS Township and Range Layer in Map: [Checked]
- Show PLSS Section Layer in Map: [Checked]

The main interface is titled 'Ecological Site Assessment' and includes the following sections:

- Search**: Contains 'Ecological Sites' and 'All Ecological Sites' links, along with 'Open All' and 'Close All' buttons.
- View Options**: Includes checkboxes for 'Dominant Ecological Site Map' and 'Ecological Sites by Map Unit Component Table', both of which are checked.
- Basic Options**: Includes a dropdown for 'Ecological Site Type' set to 'Rangeland'.
- Legend**: A vertical legend on the right side of the map area.
- Map**: A map titled 'Map — Dominant Ecological Site — Rangeland' showing a satellite view of a landscape with a red-shaded area indicating the selected site. A scale bar at the bottom indicates 0 to 100 feet.

Below the 'Basic Options' section, a list of ecological site descriptions is provided:

- R055CY004SD — Wet Meadow
- R055CY006SD — Limy Subirrigated
- R055CY010SD — Loamy
- R055CY011SD — Clayey
- R055CY013SD — Claypan
- R055CY019SD — Closed Depression
- R055CY020SD — Loamy Overflow

Step 1: Determine Remote Indicators for Hydrophytic Vegetation



HaA - Minor Components

Tetonka

Percent of map unit: 3 percent

Landform: Depressions

Landform position (two-dimensional): Toeslope

Down-slope shape: Concave

Across-slope shape: Concave

Ecological site: Wet meadow (R055CY004SD)

Hoven

Percent of map unit: 3 percent

Landform: Depressions

Landform position (two-dimensional): Toeslope

Down-slope shape: Concave

Across-slope shape: Concave

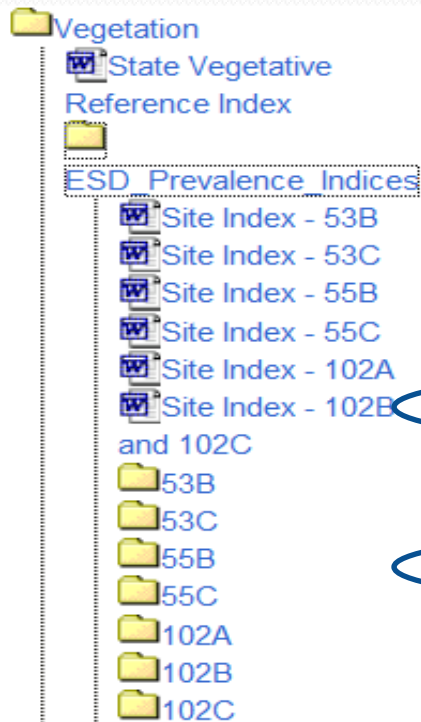
Ecological site: Closed depression (R055CY019SD)

Map unit symbol	Map unit name	Component name (percent)	Ecological site
HaA	Hand-Bonilla loams, 0 to 3 percent slopes	Hand (50%)	R055CY010SD — Loamy
		Bonilla (35%)	R055CY020SD — Loamy Overflow
		Davison (3%)	R055CY006SD — Limy Subirrigated
		Dudley (3%)	R055CY013SD — Claypan
		Hoven (3%)	R055CY019SD — Closed Depression
		Stickney (3%)	R055CY011SD — Clayey
		Tetonka (3%)	R055CY004SD — Wet Meadow
HaB	Hand-Bonilla loams, 3 to 6 percent slopes	Hand (55%)	R055CY010SD — Loamy
		Bonilla (30%)	R055CY010SD — Loamy
		Davison (3%)	R055CY006SD — Limy Subirrigated
		Dudley (3%)	R055CY013SD — Claypan
		Hoven (3%)	R055CY019SD — Closed Depression
		Stickney (3%)	R055CY011SD — Clayey
		Tetonka (3%)	R055CY004SD — Wet Meadow
Te	Tetonka-Hoven silt loams	Tetonka (75%)	R055CY004SD — Wet Meadow
		Hoven (20%)	R055CY019SD — Closed Depression
		Davison (3%)	R055CY006SD — Limy Subirrigated
		Dudley (2%)	R055CY013SD — Claypan

Note: Hoven and Tetonka inclusions in depressions

Step 1: Determine Remote Indicators for Hydrophytic Vegetation

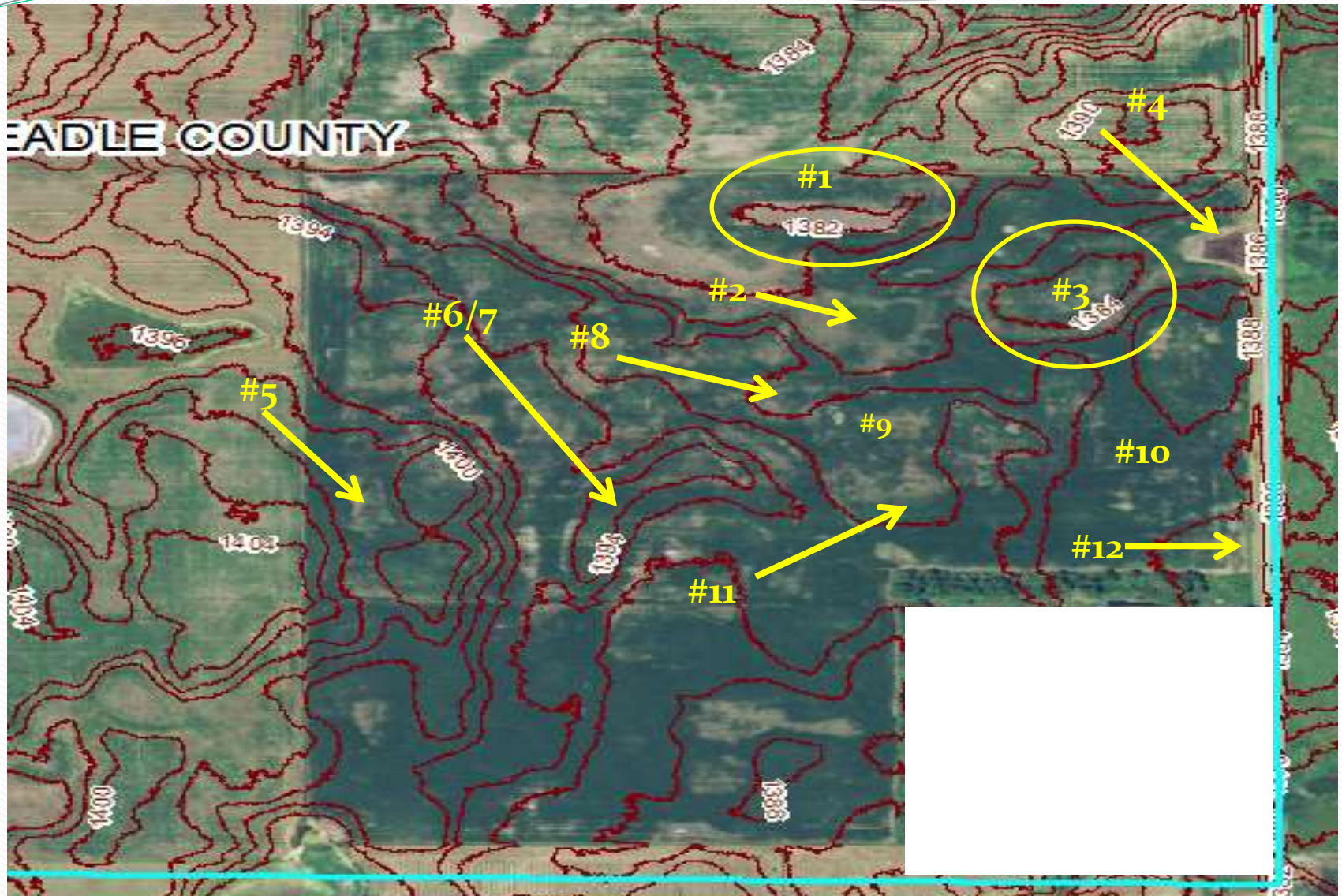
- Use Section I, State Offsite Methods, Vegetation, ESD_PI, of the FOTG to find the MLRA Index for the appropriate ESD plant community



MLRA 55C – Southern Black Glaciated Plains, Ecological Site Index	
Ecological Sites, Sorted by Site ID	ESD Vegetative Reference P.I. P.I. < 3 meets hydrophytic vegetation indicator test.
R055CY001SD – Shallow Marsh	1.3992
R055CY002SD – Wet Land	1.9959
R055CY003SD – Subirrigated	3.5612
R055CY004SD – Wet Meadow	2.1395
R055CY006SD – Limy Subirrigated	4.2341
R055CY007SD – Saline Lowland	2.5683
R055CY019SD – Closed Depression	2.6286
R055CY020SD – Loamy Overflow	4.2096
R055CY021SD – Clayey Overflow	4.1260

The review indicates Wet Meadow and Closed Depression sites meet the hydrophytic vegetation definition. The question now is, are the sampling units in a depressional water-receiving landscape position.

Depressions?



Note: All sampling units EXCEPT 5 and 9 are in depressions

Step 1: Determine Remote Indicators for Hydrophytic Vegetation

USE THE SOSM
WORKSHEET:
FACTOR
AND
DEFINITION
DOCUMENTATION

Sampling Unit Number	Step 1					
	Hydro. Vegetation	Hydrophytic Vegetation Definition Met	Hydric Soils	Hydric Soils Definition Met	Wetland Hydrology	Wetland Hydrology Definition Met
1	YES	?				
2	YES	?				
3	YES	?				
4	YES	?				
5	NO	NO				
6	YES	?				
7	YES	?				
8	YES	?				
9	NO	NO				
10	YES	?				
11	YES	?				
12	YES	?				
U	NO	NO				

Vegetation

ANY QUESTIONS
FOR CLARITY?

Step 1: Determine Remote Indicators for Hydric Soils

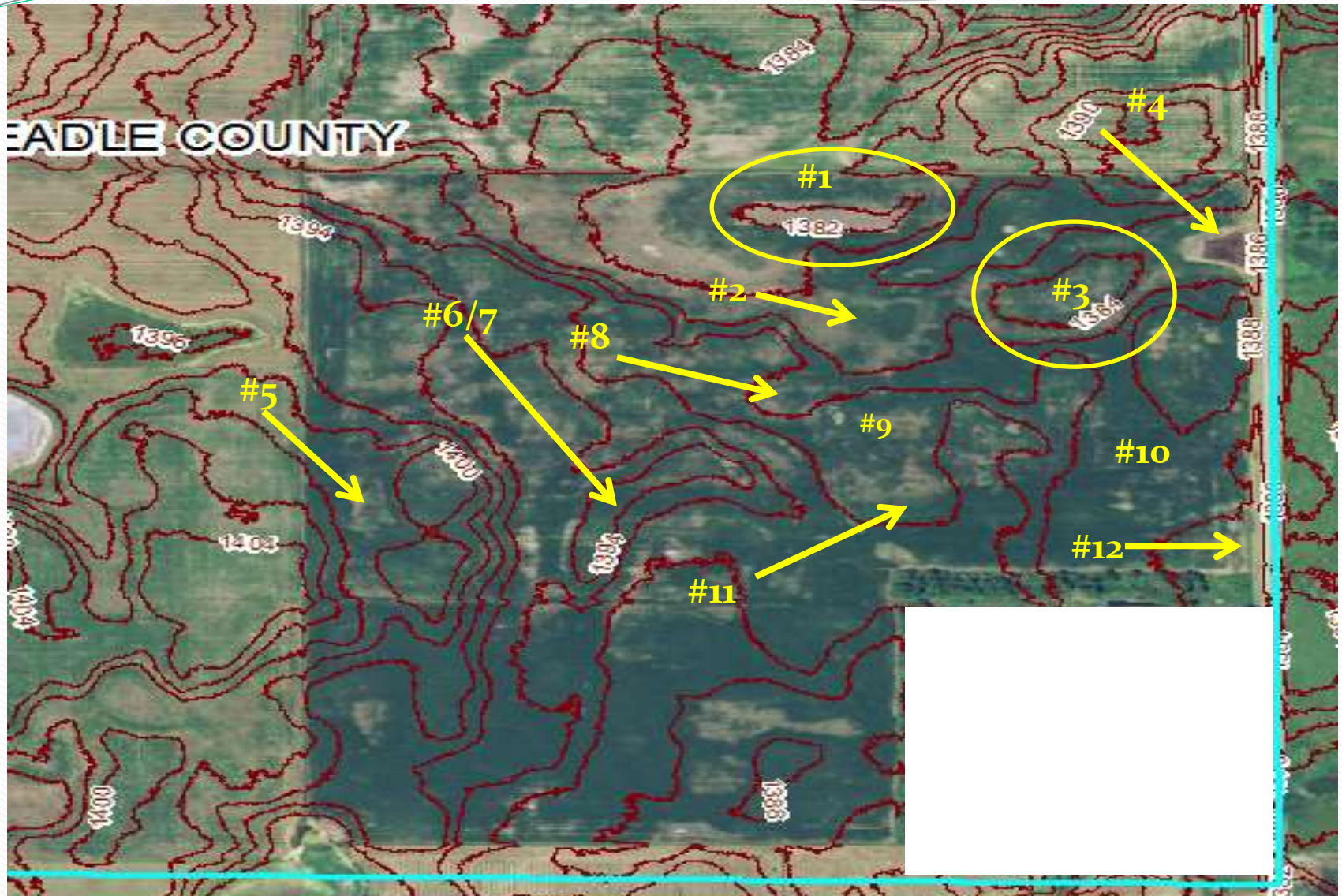
Hydric soils will be identified through the use of published soil surveys

Report — Hydric Soil List - All Components					
SD005-Beadle County, South Dakota					
Map symbol and map unit name	Component/Local Phase	Comp. pct.	Landform	Hydric status	Hydric criteria met (code)
HaA: Hand-Bonilla loams, 0 to 3 percent slopes	Hand	50	Till plains	No	—
	Bonilla	35	Swales	No	—
	Dudley	3	Till plains	No	—
	Tetonka	3	Depressions	Yes	2,3
	Stickney	3	Till plains	No	—
	Davison	3	Swales on till plains	No	—
	Hoven	3	Depressions	Yes	2,3
HaB: Hand-Bonilla loams, 3 to 6 percent slopes	Hand	55	Till plains	No	—
	Bonilla	30	Swales	No	—
	Dudley	3	Till plains	No	—
	Tetonka	3	Depressions	Yes	2,3
	Stickney	3	Till plains	No	—
	Davison	3	Swales on till plains	No	—
	Hoven	3	Depressions	Yes	2,3
Te: Tetonka-Hoven silt loams	Tetonka	75	Depressions	Yes	2,3
	Hoven	20	Depressions	Yes	2,3
	Davison	3	Swales on till plains	No	—
	Dudley	2	Till plains	No	—

Note: Tetonka and Hoven inclusions in depressions



Depressions?



Note: All sampling units EXCEPT 5 and 9 are in depressions

Step 1: Determine Remote Indicators for Hydric Soils

USE THE SOSM
WORKSHEET:
FACTOR
AND
DEFINITION
DOCUMENTATION

Sampling Unit Number	Step 1					
	Hydro- Vegetation	Hydrophytic Vegetation Definition Met	Hydric Soils	Hydric Soils Definition Met	Wetland Hydrology	Wetland Hydrology Definition Met
1	YES	?	YES	YES		
2	YES	?	YES	YES		
3	YES	?	YES	YES		
4	YES	?	YES	YES		
5	NO	NO	NO	NO		
6	YES	?	YES	YES		
7	YES	?	YES	YES		
8	YES	?	YES	YES		
9	NO	NO	NO	NO		
10	YES	?	YES	YES		
11	YES	?	YES	YES		
12	YES	?	YES	YES		
U	NO	NO	NO	NO		

Note: SU₅ and SU₉ are not in a depression of landscape, therefore not hydric soil

Soils

**ANY QUESTIONS
FOR CLARITY?**

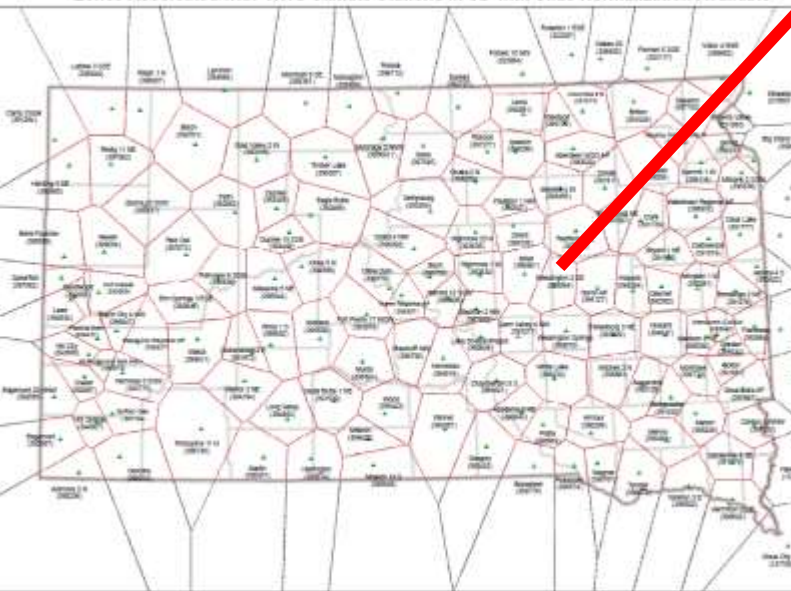
Step 1: Determine Remote Indicators for Wetland Hydrology

- Wetland Hydrology means inundation or saturation of the site by surface or groundwater during a growing season at a frequency and duration sufficient to support a prevalence of hydrophytic vegetation.
- Imagery will be reviewed for “wetness signatures” of inundation (INU) or color tone (CT). CT/INU will be recorded as applicable.
- For non-manipulated SU’s (pre-12/23/1985), the imagery review will consist of all available normal years (1980 to present).
- For pre-12/23/1985 manipulated SU’s, the agency expert must determine NC in consideration of when the manipulation was installed and the best drained condition of the sampling unit.
 - To determine the best drained condition, the agency expert must review imagery years immediately following the approximate manipulation year up to 1985, or further, if necessary.
 - The agency expert must consider lack of maintenance (e.g., tile blowout) and recent maintenance when reviewing imagery years.

Climate Stations in SD

Climate Date for our example site with normal years identified.

Zones Associated with NWS Climate Stations in SD with Slide Normalization Available



Select all normal years.

In this example:

1980, 1982, 1983, 1985, 1986, 1988, 1989, 1993, 1994, 1995, 1996, 1998, 2000, 2003, 2004, 2012

Rainfall Data
Wessington 2 SE
Station #SD0064
Beadle County, SD

Year	Monthly Rainfall Totals in Inches								Monthly Weighted Totals					Slide Indicator Status				
	March	April	May	June	July	Aug.	Sept.	Oct.	June	July	Aug.	Sept.	Oct.	June	July	Aug.	Sept.	Oct.
1965	0.4	3.08	4.33	1.35	0.85	1.88	0.79		19.51	15.77	9.58	8.69	6.88	WET	NORM	DRY	NORM	NORM
1970	1.7	4.94	3.21	3.02	2.36	2.18	0.69		21.21	20.42	16.33	14.28	8.79	WET	NORM	NORM	NORM	NORM
1980	0.49	1.42	2.01	4.00	2.60	3.52	0.30		9.36	17.44	17.81	19.78	10.54	NORM	NORM	NORM	WET	NORM
1981	2.66	0.30	0.73	2.12	2.10	2.56	0.76		5.45	8.12	11.27	14.00	9.50	DRY	DRY	NORM	NORM	NORM
1982	1.40	0.99	6.26	0.87	4.53	1.45	2.01		22.16	18.12	21.59	14.28	13.46	WET	NORM	WET	NORM	NORM
1983	1.83	0.90	1.94	4.41	1.48	0.77	2.22		9.45	18.01	15.20	9.68	9.68	NORM	NORM	NORM	NORM	NORM
1984	1.54	2.84	2.44	5.49	0.89	2.10	0.87		14.54	24.19	15.49	13.17	7.50	NORM	WET	NORM	NORM	NORM
1985	4.01	1.57	2.03	2.36	4.67	2.57	1.06		13.24	12.71	20.78	19.41	12.99	NORM	NORM	WET	WET	NORM
1986	1.56	5.08	3.15	1.27	4.21	1.09	5.37		21.17	15.19	18.32	12.98	22.50	WET	NORM	NORM	NORM	WET
1987	4.36	1.16	1.42	1.04	1.37	2.26	0.95		10.94	7.12	7.61	10.56	8.74	NORM	DRY	DRY	NORM	NORM
1988	0.75	1.91	5.40	0.40	2.89	1.81	3.13		20.77	13.91	14.87	11.61	15.90	WET	NORM	NORM	NORM	WET
1989	2.23	3.03	1.22	1.89	1.66	1.36	1.73		11.95	11.14	9.98	9.29	9.57	NORM	NORM	NORM	NORM	NORM
1990	0.40	1.85	5.02	4.12	1.35	1.52	0.39		19.16	24.25	17.31	11.38	5.56	WET	WET	NORM	NORM	DRY
1991	0.93	6.38	6.09	2.69	1.96	2.32	3.39		31.96	26.83	17.35	13.57	16.77	WET	WET	NORM	NORM	WET
1992	0.62	0.65	0.45	4.88	6.59	2.21	1.32		3.27	16.19	29.98	24.69	14.97	DRY	NORM	WET	WET	NORM
1993	1.60	2.65	3.11	6.88	3.17	0.88	1.43		16.23	29.51	26.38	15.80	9.18	NORM	WET	WET	NORM	NORM
1994	0.12	4.34	0.76	3.84	3.17	3.88	1.30		11.08	17.38	17.95	21.82	14.83	NORM	NORM	NORM	WET	NORM
1995	3.62	5.81	6.78	2.62	1.22	2.19	3.11		35.58	27.23	15.68	11.63	14.93	WET	WET	NORM	NORM	NORM
1996	1.00	0.20	5.03	1.44	1.73	0.47	7.54		16.49	14.58	13.10	6.31	25.29	NORM	NORM	NORM	DRY	WET
1997	0.16	2.45	2.82	1.80	6.83	2.60	2.21		13.52	13.49	26.91	23.26	18.66	NORM	NORM	WET	WET	WET
1998	1.79	1.72	3.73	3.35	2.16	3.60	0.00		16.42	19.23	16.91	18.47	9.36	NORM	NORM	NORM	WET	NORM
1999	0.45	2.50	4.24	3.55	1.64	3.39	2.30		18.17	21.63	16.26	17.00	15.32	NORM	WET	NORM	WET	WET
2000	0.15	2.08	3.47	2.40	3.98	2.90	0.00		14.72	16.22	20.21	19.08	9.78	NORM	NORM	WET	WET	NORM
2001	0.00	7.34	2.65	4.24	1.28	0.64	2.17		22.63	25.36	14.97	8.72	9.07	WET	WET	NORM	NORM	NORM
2002	1.52	1.65	1.62	0.55	0.84	3.51	0.44		9.68	6.54	5.24	12.76	9.18	NORM	DRY	DRY	NORM	NORM
2003	0.48	1.69	2.20	3.08	2.00	1.08	1.38		10.46	15.33	14.36	10.32	8.30	NORM	NORM	NORM	NORM	NORM
2004	2.42	1.12	3.07	3.33	4.75	1.91	3.50		13.87	17.25	23.98	18.56	19.07	NORM	NORM	WET	WET	WET
2005	0.35	0.89	2.63	8.33	1.93	1.2	5.34		10.02	31.14	25.08	15.79	20.35	NORM	WET	WET	NORM	WET
2006	1.88	1.34	1.16	1.79	0.12	6.26	3.00		8.04	9.03	5.10	20.81	21.64	DRY	DRY	DRY	WET	WET
2007	2.15	2.33	9.16	4.80	0.10	7.60	1.27		34.29	35.05	19.06	27.80	19.11	WET	WET	NORM	WET	WET
2008	1.26	2.61	2.93	5.78	5.34	0.75	5.03		15.27	25.81	30.51	18.71	21.93	NORM	WET	WET	WET	WET
2009	2.70	1.57	0.58	4.04	3.05	3.17	0.83		7.58	14.85	17.81	19.65	11.88	DRY	NORM	NORM	WET	NORM
2010	1.75	3.82	5.20	9.82	5.81	1.89	3.42		24.99	43.68	41.67	26.71	19.65	WET	WET	WET	WET	WET
2011	1.09	2.88	5.25	4.95	1.87	3.19	0.55		22.20	28.03	20.76	18.26	9.90	WET	WET	WET	WET	NORM
2012	0.57	5.65	2.92	1.20	0.58	0.65	0.10		20.63	15.09	7.06	4.31	2.18	WET	NORM	DRY	DRY	DRY
2013	0.67	3.53	5.17	5.37	1.08	0.94	0.80		23.24	29.98	19.15	10.35	5.36	WET	WET	NORM	NORM	DRY
2014									0.00	0.00	0.00	0.00	0.00	DRY	DRY	DRY	DRY	DRY
2015									0.00	0.00	0.00	0.00	0.00	DRY	DRY	DRY	DRY	DRY

Month	30% Lower Bound	N	30% Upper Bound	Normals are for 1971-2000 data	
March	0.64	1.53	1.86	March	1.53
April	1.35	2.42	2.95	April	2.42
May	1.78	3.10	3.78	May	3.10
June	1.77	2.84	3.43	June	2.84
July	1.45	2.47	2.99	July	2.47
August	1.31	2.07	2.49	August	2.07
Sept.	0.80	1.87	2.37	Sept.	1.87
Jun-MAM	8.68	15.67	19.10		
Jul-JMA	10.22	17.14	20.80		
Aug-JJM	9.67	16.19	19.61		
Sep-AJJ	8.60	13.99	16.88		
Oct-SAJ	6.47	12.22	15.08		

Note:
Huron AP NWS Station (SD4127) was used for April-Sept. 1985;
March-May 1986; and March 1997.

Step 1: Determine Remote Indicators for Wetland Hydrology

The following remote indicators are suggestive (indicates) that the wetland hydrology definition is met:



- Imagery showing surface water inundation (INU) by ponding or flooding under Normal Conditions.
- Imagery showing a Color Tone difference (CT) due to wetness that is reflective of Normal Conditions
- A CT is any hydrology signature listed in the remote sensing methods.

Wetness Signatures - Color Tones

Imagery color tones provide clear distinctions in the condition of the SU compared to the condition in the surrounding field including size and color.

Color tones include:

- Hydrophytic (likes water) vegetation.
- Saturated conditions
- Stressed crops due to wetness
- Differences in vegetation due to different planting or replanting dates
- Inclusion of wet areas as set-aside or idled land
- Circular or irregular areas of unharvested crops within a harvested field
- Isolated areas that are not farmed with the rest of the field
- Areas of greener vegetation (especially during dry years)

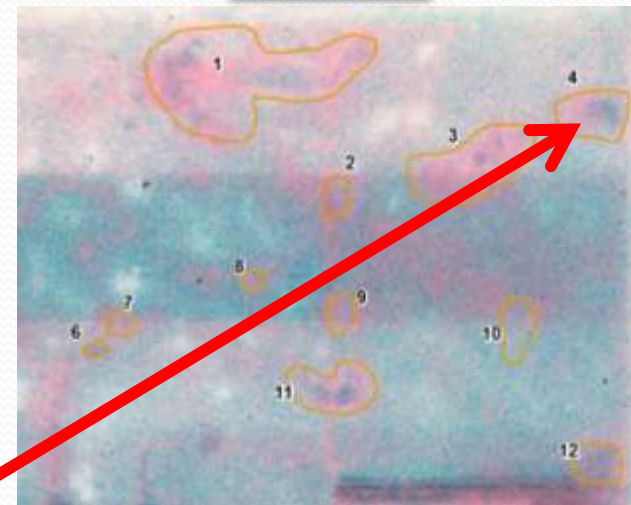


1980



Review
Imagery for
CT (Color
Tone) or INU
(Inundation)
signatures

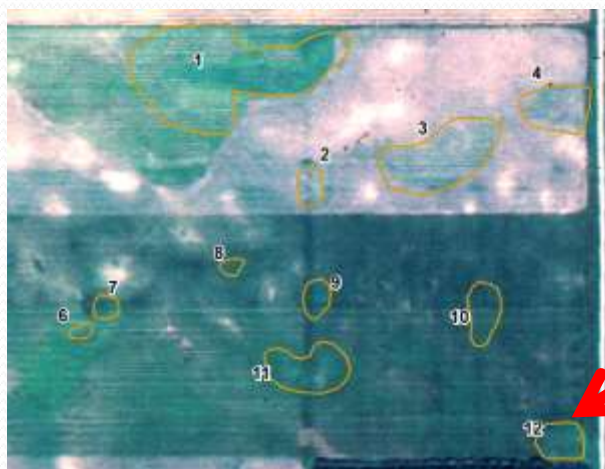
1982



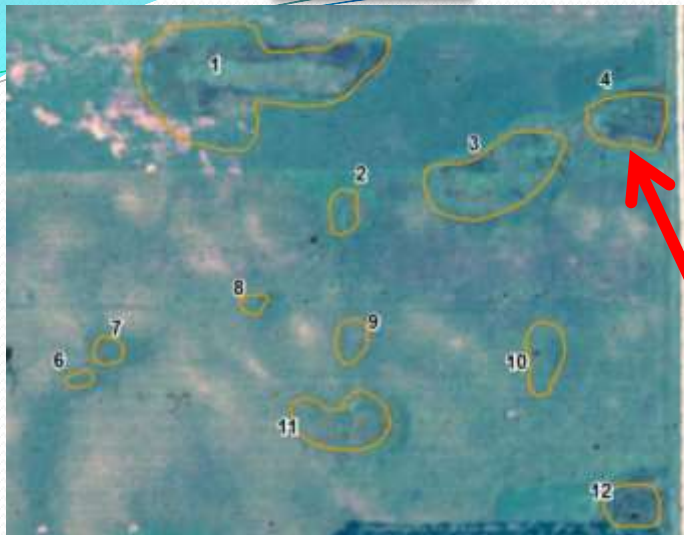
1983

Sampling Unit	1	2	3	4	5	6	7	8	9	10	11	12
Slides * Month/Year
Jun-80CT	--	--	--	CT	--	CT	--	--	--	--	--	--
Jul-82CT	--	CT	CT	CT	--	--	--	--	--	CT	CT	--
Jul-83CT	--	CT	CT	--	--	CT	--	--	--	--	CT	--
Jul-85CT	--	--	--	CT	CT	CT	--	CT	CT	CT	CT	CT

1985



1986



Review
Imagery for
CT (Color
Tone) or INU
(Inundation)
signatures

1988

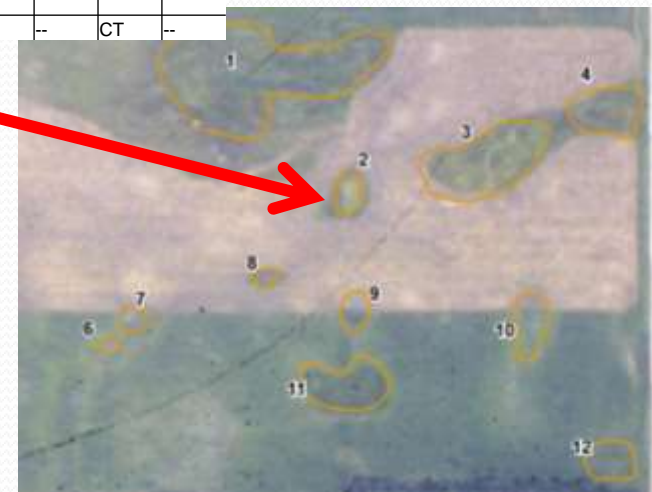


1989



Sampling Unit	1	2	3	4	5	6	7	8	9	10	11	12
Slides * Month/Year	...	...	...	...	...	...	...	...	...	...	...	...
Aug-86	CT	CT	CT	CT	--	--	--	--	--	--	CT	CT
Aug-88	--	CT	--	--	--	--	--	--	CT	--	CT	--
Jul-89	CT	--	CT	CT	--	--	--	--	--	--	CT	--
Sep-93	CT	CT	CT	CT	--	--	--	CT	--	--	CT	--

1993

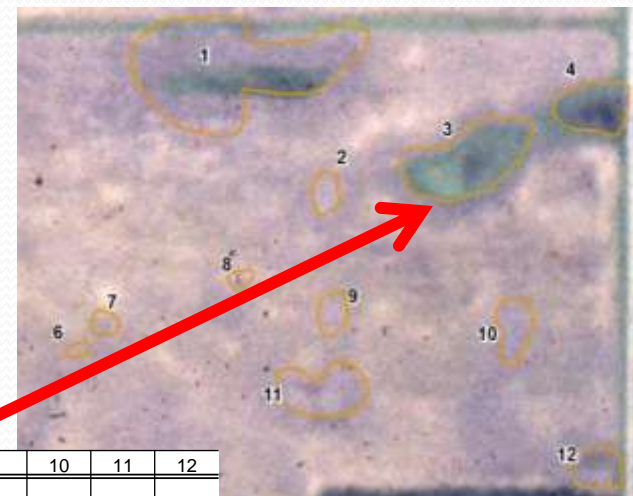


1994



Review
Imagery for
CT (Color
Tone) or INU
(Inundation)
signatures

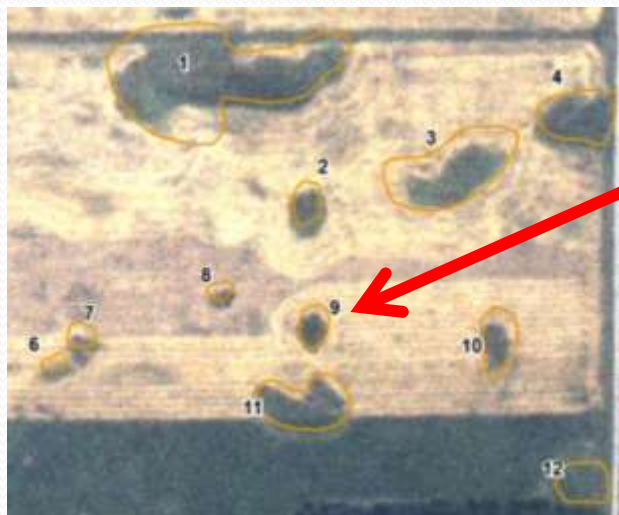
1995



1996

Sampling Unit	1	2	3	4	5	6	7	8	9	10	11	12
Slides * Month/Year	...	...	...	...	...	...	...	...	...	...	...	...
Jul-94 CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT
Aug-95 CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT
Aug-96 CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT
Aug-98 CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT

1998

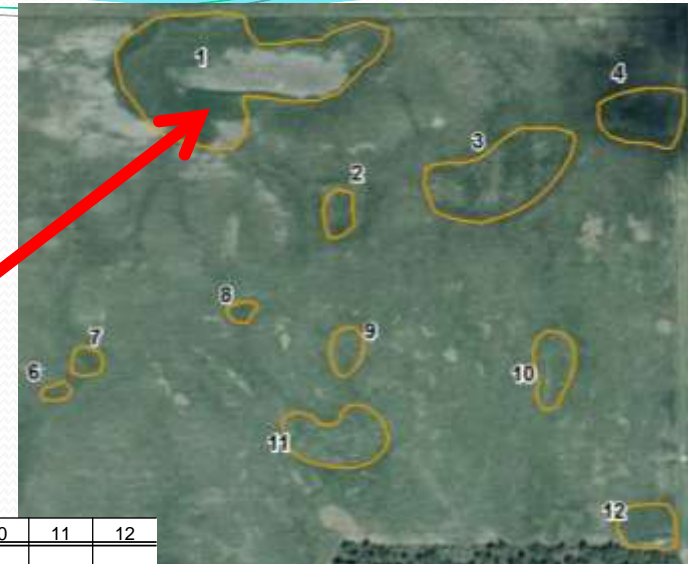


2000

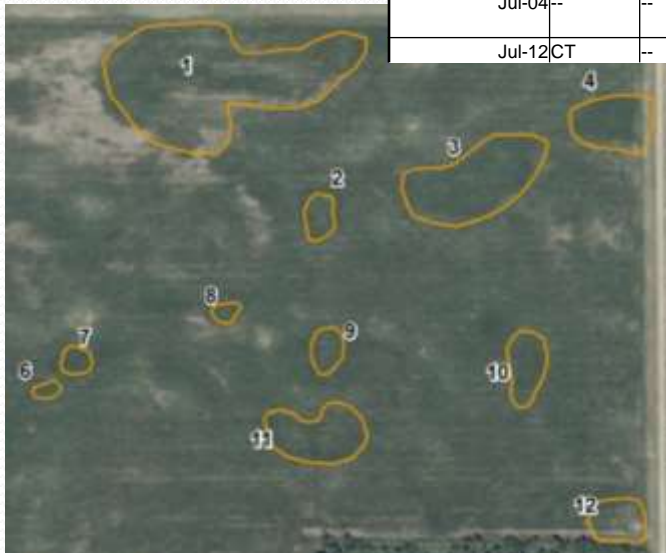


Review
Imagery for
CT (Color
Tone) or INU
(Inundation)
signatures

2003



2004



2012



Sampling Unit	1	2	3	4	5	6	7	8	9	10	11	12
Slides * Month/Year	...	...	...	...	...	...	...	...	...	...	...	...
Jul-00 CT	--	CT	CT	CT	--	CT	--	--	--	--	--	--
Aug-03 CT	CT	CT	CT	--	--	--	--	--	--	--	CT	--
Jul-04 --	--	--	--	--	--	--	--	--	--	--	--	--
Jul-12 CT	--	--	CT	--	--	--	--	--	--	--	--	--

Wetness Signature Imagery Review Results by SU

Sampling Unit	1	2	3	4	5	6	7	8	9	10	11	12
Slides * Month/Year	---	---	---	---	---	---	---	---	---	---	---	---
Jun-80	CT	--	--	--	CT	--	CT	--	--	--	--	--
Jul-82	CT	--	CT	CT	CT	--	--	--	--	--	CT	CT
Jul-83	CT	--	CT	CT	--	--	CT	--	--	--	--	CT
Jul-85	CT	--	--	--	CT	CT	CT	--	CT	CT	CT	CT
Aug-86	CT	CT	CT	CT	--	--	--	--	--	--	CT	CT
Aug-88	--	CT	--	--	--	--	--	--	CT	--	CT	--
Jul-89	CT	--	CT	CT	--	--	--	--	--	--	CT	--
Sep-93	CT	CT	CT	CT	--	--	--	CT	--	--	CT	--
Jul-94	CT	CT	CT	CT	--	--	--	--	--	--	CT	CT
Aug-95	CT	--	CT	CT	--	--	--	--	--	--	--	--
Aug-96	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT	CT
Aug-98	CT	CT	CT	--	--	--	--	--	--	--	CT	CT
Jul-00	CT	--	CT	CT	CT	--	CT	--	--	--	--	--
Aug-03	CT	CT	CT	CT	--	--	--	--	--	--	--	CT
Jul-04	--	--	--	--	--	--	--	--	--	--	--	--
Jul-12	CT	--	--	CT	--	--	--	--	--	--	--	--
	88%	44%	69%	69%	31%	13%	31%	13%	19%	13%	56%	50%

Step 1: Determine Remote Indicators for Wetland Hydrology

USE THE SOSM
WORKSHEET:
FACTOR
AND
DEFINITION
DOCUMENTATION

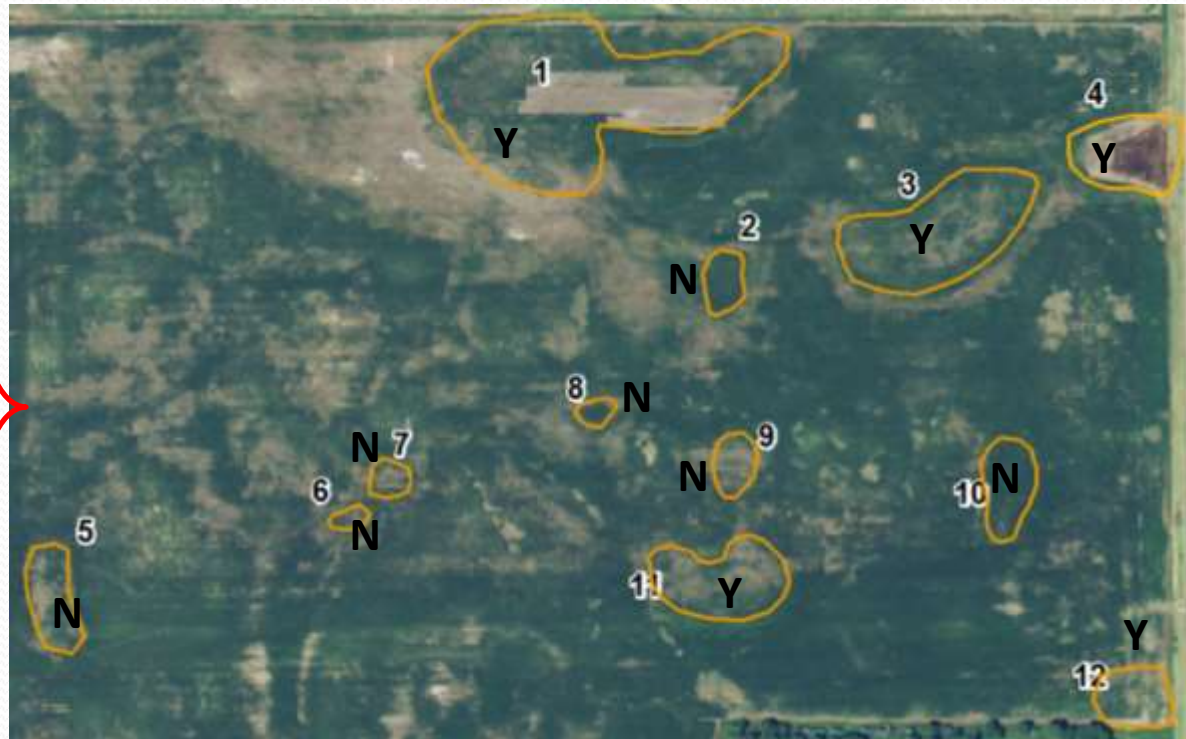
Step 1						
Sampling Unit Number	Hydro. Vegetation	Hydrophytic Vegetation Definition Met	Hydric Soils	Hydric Soils Definition Met	Wetland Hydrology	Wetland Hydrology Definition Met
1	YES	YES	YES	YES	YES	YES
2	YES	NO	YES	YES	NO	NO
3	YES	YES	YES	YES	YES	YES
4	YES	YES	YES	YES	YES	YES
5	NO	NO	NO	NO	NO	NO
6	YES	NO	YES	YES	NO	NO
7	YES	NO	YES	YES	NO	NO
8	YES	NO	YES	YES	NO	NO
9	NO	NO	NO	NO	NO	NO
10	YES	NO	YES	YES	NO	NO
11	YES	YES	YES	YES	YES	YES
12	YES	YES	YES	YES	YES	YES
U	NO	NO	NO	NO	NO	NO

Hydrology

ANY QUESTIONS
FOR CLARITY?

Step 2 – Application of Exemption Criteria (Assign WC Labels)

Sampling Unit Number	Step 1					
	Hydro. Vegetation	Hydrophytic Vegetation Definition Met	Hydric Soils	Hydric Soils Definition Met	Wetland Hydrology	Wetland Hydrology Definition Met
1	YES	YES	YES	YES	YES	YES
2	YES	NO	YES	YES	NO	NO
3	YES	YES	YES	YES	YES	YES
4	YES	YES	YES	YES	YES	YES
5	NO	NO	NO	NO	NO	NO
6	YES	NO	YES	YES	NO	NO
7	YES	NO	YES	YES	NO	NO
8	YES	NO	YES	YES	NO	NO
9	NO	NO	NO	NO	NO	NO
10	YES	NO	YES	YES	NO	NO
11	YES	YES	YES	YES	YES	YES
12	YES	YES	YES	YES	YES	YES
U	NO	NO	NO	NO	NO	NO



- If all three factor definition answers are “Yes” (the factors are met) for a sampling unit then record a “Y” (yes) on the base map for the basin.
- If any factor definition answer is “No” (a factor is not met) for a sampling unit then record an “N” (no) on the base map for the sampling unit.
- This final base map will be used to complete Step 2: Assignment of WC labels

Step 2 – Application of Exemption Criteria (Assign WC Labels)

- SUs identified as a “Y” (wetland) or “N” (non-wetland) will be assigned the appropriate wetland labels.
- Imagery and FSA records will be reviewed for pre-12/23/1985 cropping history by SU.
- As part of NC, pre-12/23/1985 and post-12/23/1985 manipulations which can be verified through records (producer, NRCS, FSA) or applicable imagery will be recorded.

Sampling Unit Number	Step 2						
	Cropping History	Pre 12/23/85 Manipulation	Post 12/23/85 Manipulation	Landform (Pothole or NonPothole)	Ponding Duration	Saturation Duration	WC Label
1	YES	NO	NO				
2	YES	NO	NO				
3	YES	NO	NO				
4	YES	NO	NO				
5	YES	NO	NO				
6	YES	NO	NO				
7	YES	NO	NO				
8	YES	NO	NO				
9	YES	NO	NO				
10	YES	NO	NO				
11	YES	NO	NO				
12	YES	NO	NO				
U	YES	NO	NO				

Step 2 – Application of Exemption Criteria

(Assign WC Labels)

- Pothole or playa landform will be verified, by SU, from remote resources or field inspection.
 - **Pothole:** a type of small pit or closed depression [in a glaciated upland landscape position] occurring in an outwash plain, a recessional moraine, or a till plain; including lake plains.
 - **Playa:** usually dry and nearly level lake plain that occupies the lowest parts of closed depressions, floods from precipitation-runoff events.

Sampling Unit Number	Step 2						WC Label
	Cropping History	Pre 12/23/85 Manipulation	Post 12/23/85 Manipulation	Landform (Pothole or NonPothole)	Ponding Duration	Saturation Duration	
1	YES	NO	NO	YES	N/A	N/A	
2	YES	NO	NO	YES	N/A	N/A	
3	YES	NO	NO	YES	N/A	N/A	
4	YES	NO	NO	YES	N/A	N/A	
5	YES	NO	NO	NO	N/A	N/A	
6	YES	NO	NO	YES	N/A	N/A	
7	YES	NO	NO	YES	N/A	N/A	
8	YES	NO	NO	YES	N/A	N/A	
9	YES	NO	NO	NO	N/A	N/A	
10	YES	NO	NO	YES	N/A	N/A	
11	YES	NO	NO	YES	N/A	N/A	
12	YES	NO	NO	YES	N/A	N/A	
U	YES	NO	NO	NO	N/A	N/A	

- Verification of ponding/saturation will be determined, if applicable.
 - Imagery necessary to determine best drained condition (e.g. 1986 and earlier)
 - Any NRCS record showing field verified manipulation with an assessment of duration such as drainage equations.

Step 2 – Application of Exemption Criteria (Assign WC Labels)

Step 1			Step 2						
Hydrophytic Vegetation	Hydric Soils	Wetland Hydrology	Pre-1985 Cropping History	Pre 12/23/85 Manipulation	Post 12/23/85 Manipulation	Landform	Ponding Duration	Saturation Duration	WC Label
Y for ALL factors			Y or N	N	N	Any	n/a	n/a	W
			Y	Y	N	Pothole /playa	Y or N	Y	F W
			Y	Y	N	Non-pothole	Y	n/a	F W
			Y	Y	N	Non-pothole	N	n/a	N W
			N	Y	N	Pothole /playa	Y or N	Y	F W P
			N	Y	N	Non-pothole	Y	n/a	F W P
Y	Y	Y or N	Y	Y	N	Pothole /playa	N	N	PC
Y	Y	Y or N	Y	Y	N	Non-Pothole	N	n/a	PC
N ¹	Y	Y	Y	Y	N	Pothole /playa	Y or N	Y	N W
N ¹	Y	Y	Y	Y	N	Non-Pothole	Y or N	n/a	N W
Y for ALL factors			Y or N	Y or N	Y only if 12/23/1985 to 1990	Pothole /playa	Y or N	Y	*C W
			Y or N	Y or N	Y only if 12/23/1985 to 1990	Non-Pothole	Y	n/a	*C W
			Y or N	Y or N	Y (any year)	Pothole /playa	Y or N	Y	*C W ²
			Y or N	Y or N	Y (any year)	Non-pothole	Y	n/a	*C W ²
			Y or N	Y or N	Y	Pothole /playa	Y or N	Y	*C W + yr
			Y or N	Y or N	Y	Non-Pothole	Y	n/a	*C W + yr

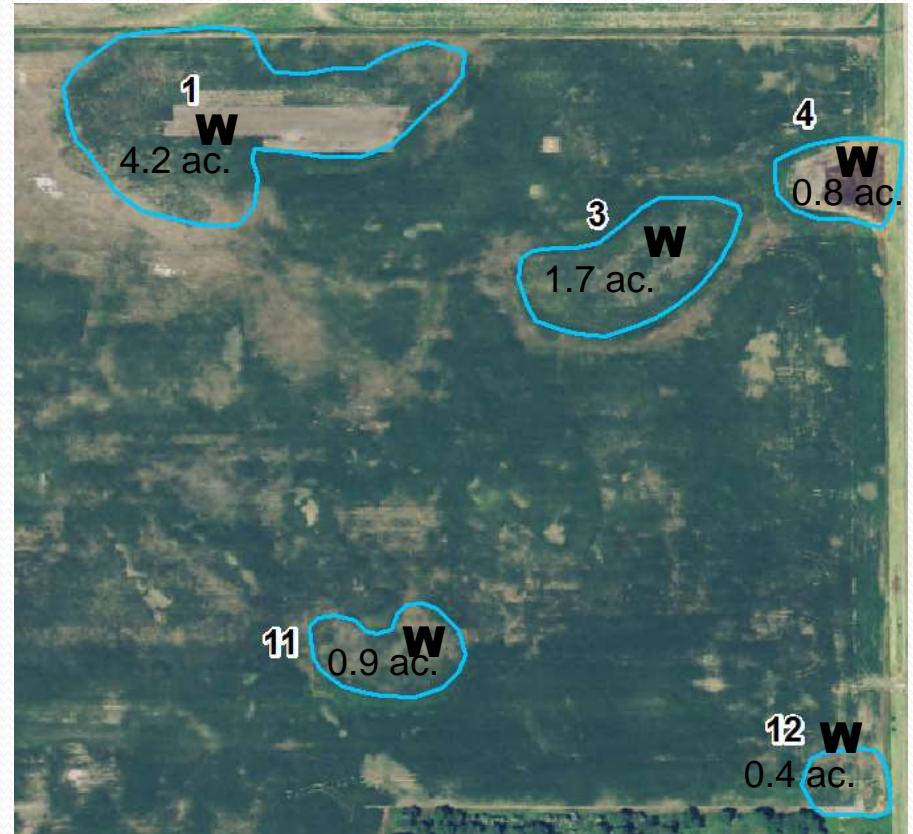
Sampling Unit Number	Step 2						WC Label
	Cropping History	Pre 12/23/85 Manipulation	Post 12/23/85 Manipulation	Landform (Pothole or NonPothole)	Ponding Duration	Saturation Duration	
1	YES	NO	NO	YES	N/A	N/A	W
2	YES	NO	NO	YES	N/A	N/A	NW
3	YES	NO	NO	YES	N/A	N/A	W
4	YES	NO	NO	YES	N/A	N/A	W
5	YES	NO	NO	NO	N/A	N/A	NW
6	YES	NO	NO	YES	N/A	N/A	NW
7	YES	NO	NO	YES	N/A	N/A	NW
8	YES	NO	NO	YES	N/A	N/A	NW
9	YES	NO	NO	NO	N/A	N/A	NW
10	YES	NO	NO	YES	N/A	N/A	NW
11	YES	NO	NO	YES	N/A	N/A	W
12	YES	NO	NO	YES	N/A	N/A	W
U	YES	NO	NO	NO	N/A	N/A	NW

A WC compliance label matrix has been developed to assign a label to the wetland

Step 3: Determination of Size and Development of Certified Wetland Determination Map

Labeled wetland polygons on the base map are delineated using GIS as follows:

- Sampling unit and acres will be documented on the Certified Wetland Determination map.
- The Wetland Label will be documented on the Certified Wetland Determination Map



Next Steps

- The Certified Wetland Map serves as the basis for the Preliminary Technical Determination
- NRCS-CPA-026 Issued

Section II - Wetlands

Fields in this section have had wetland determinations completed. See the Definition of Wetland Label Codes for additional information regarding allowable activities under the wetland conservation provisions of the Food Security Act and/or when wetland determinations are necessary to determine USDA program eligibility.					
Field(s)	Wetland Label*	Occurrence Year (CW)	Acres	Determination Date	Certification Date
1	W		8	9/25/2014	9/25/2014
1	NW		84	9/25/2014	9/25/2014
The wetland determination was completed in the			Office	It was mailed to the person on	9/25/2014
Remarks:					

I certify that the above determinations are correct and were conducted in accordance with policies and procedures contained in the National Food Security Act Manual.

Signature	Designated Conservationist	Date

Summary

- Base map is developed compiling various data sources
- The wetland criteria of hydrology, vegetation, and soils are evaluated with remote resources (indicators)
- Sampling unit is marked as Y or N signifying wetland status on base map
- Each wetland is labeled, as to type or exemption
- Certified map is developed